DOCUMENT RESUME

ED 446 502 HE 033 313

AUTHOR Eimers, Mardy T.
TITLE The Impact of Student Experiences on Progress in College: An Examination of Minority and Nonminority Differences. AIR 2000 Annual Forum Paper.
PUB DATE 2000-05-00
NOTE 21p.; Paper presented at the Annual Forum of the Association for Institutional Research (Cincinnati, OH, May 21-24, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students; *Educational Environment; Educational Quality; Higher Education; *Minority Groups; Student Attitudes; *Student Development; *Student Experience; *Teacher Student Relationship
IDENTIFIERS *Student Satisfaction

ABSTRACT

This study investigated how minority versus nonminority students performed on different measures of college progress, particularly as the two groups experienced the campus environment in different ways. The study also examined whether satisfaction with various aspects of the college environment affected student growth and development more in some outcome areas than others and whether differences existed between minority and nonminority responses. Satisfaction was measured in four areas (faculty-student relations, academic atmosphere, campus climate, and college experience) and compared to four types of college outcome (math and science development, intellectual and skill development, career development, and problem solving development). Full-time undergraduate students at one university completed the College Outcomes Survey, which asked about student background and status; the importance of certain college outcomes and progress made toward the outcomes; satisfaction or dissatisfaction with given aspects of the college; and how the college experience contributed to student growth. Student satisfaction with faculty-student relations, program quality, and campus environment closely related to student progress in specific areas. Observed relationships were the same for minority and nonminority students. In nearly every case, student satisfaction with various aspects of the college experience positively related gains made in college. (Contains 32 references.) (SM)

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The Impact of Student Experiences on Progress in College: An Examination of Minority and Nonminority Differences

Mardy T. Eimers, PhD

Senior Research Analyst, Office of Planning & Budget
Adjunct Assistant Professor, Educational Leadership & Policy Analysis
University of Missouri
104 University Hall
Columbia, Missouri 65211
eimersm@umsystem.edu
(573) 882-3412

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Presented at the Association for Institutional Research Annual Meeting in Cincinnati, Ohio, May 21-24, 2000.

HE033313

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The Impact of Student Experiences on Progress in College: An Examination of Minority and Nonminority Differences

Introduction

Demographic shifts in the United States have witnessed an increase in the number of minorities not only in the general population but also in college participation. Minorities, however, have typically had fewer opportunities to attend college and once enrolled, have generally found it more difficult to succeed academically and graduate (Porter, 1990; Wilson, 1994). Several explanations have been offered that may account for these findings. Minority students may be less prepared than nonminority students, or they may find a particular campus environment less inviting. Minority students might also have different career aspirations or have commitments outside of college that draw them away from their academic focus. Consequently, academic success becomes more elusive.

The work of Pace (1984), Astin (1993), Kuh (1993), and Tinto (1987) suggests that the more satisfied and involved a student is in college, the more likely he or she will be academically successful and graduate. Therefore, if the relationship between college experiences and college success was better understood—particularly for minority students—perhaps colleges and universities could enhance the success of minority students on their campuses. Consequently, the following questions frame the focus of this study. How do minority students perform on progress in college measures when compared to nonminority students, particularly when the two groups may engage and experience the campus environment in systematically different ways? Second, does the satisfaction with various aspects of the college environment (interactions with faculty, for example) affect student growth and development in some outcome areas more dramatically than in other areas? More importantly, are there differences between minority and nonminority responses?

Literature Review

The theoretical foundation of this study rests with the underlying principles of "college impact models." These models and the accompanying theories assert that the college environment and the student's interaction with that environment can have a significant impact on a variety of college outcomes. Astin's theory of student involvement, Tinto's theory of student departure, and Pascarella's model of assessing change in college students are all examples of theories that would fall under the rubric of college impact models (Pascarella & Terenzini, 1991). Each of these models focuses on a student's college experiences and the campus environment to explain the specific outcome(s) under consideration. These aspects have included institutional procedures and policies, student attitudes and satisfaction, campus climate and culture, out-of-class activities, student effort, as well as the quality of involvement and interactions with peers, faculty, and others. Outcome measures have included a student's intent to persist in college, academic performance, as well as his or her level of social, personal, and intellectual development.

Much of the previous research in this area centers on how student experiences during college—and their assessment of these experiences—affect student learning and development. This research is complex and extensive as hundreds of studies have been completed under different circumstances, with different samples and research methodologies. In addition, these studies have included various college outcomes (e.g., retention, personal development, cognitive development, etc.) and an even larger number of "effect" variables (e.g., campus climate, interaction with peers, quality of teaching, program quality, etc.). There are several theories, however, that help to elucidate the relationship between college experiences and student development as well as research that has synthesized much of the inquiry in this area. One of the most accepted theories is Astin's (1984; 1993) theory of involvement. This theory postulates that a student's level of involvement and engagement in college is directly related to his or her

learning and development in college. Astin, tapping the work of Pace (1984), also stated that learning will be further enhanced if the student not only gets involved but also puts forth a quality effort. Thus, students who take responsibility for their own involvement in college may enhance their own learning and development.

More specifically, Astin (1984; 1993) reported that characteristics such as institutional size, peer group relationships, the research focus of faculty, and the institution's commitment to undergraduate education had the most significant effects on a student's intellectual, personal, and social development. The level of development was also closely tied to a student's level of involvement with his or her peers, professors, and academic program. One of Astin's most important findings found that institutional type tends to exert little influence on measures of student development. That is, it is not the type of institution *per se* that has an effect on undergraduate student development, but the opportunities to get involved, the opportunities to interact with others, and the commitment that the institution has toward learning that makes the key difference. Pascarella and Terenzini's (1991) reinforced these general themes. The impact of college on undergraduate students increases when students believe they are valued, when undergraduate education is taken seriously, when student and faculty interaction is frequent and meaningful, and when students with similar aspirations can interact. In addition, the impact of college increases when effective teaching and an understanding of learning are demonstrated in the classroom.

In summary, how college affects students has been an area of inquiry that has been extensively studied. In many of those studies, however, researchers have seldom specifically examined how the undergraduate student experience influences progress in college for different types of students.

Minority and Nonminority Students

As with much of the quantitative research in higher education, studies that have focused on the relationship between college effects and college outcomes have concentrated on groups of students. These groups have frequently included minority and nonminority students, and some studies have controlled for this minority-nonminority status. Nevertheless, their purpose has seldom specifically examined potential differences between minority and nonminority students in regard to their growth toward specific college outcomes. Pascarella and Terenzini (1991), addressing how the college experience might differ for minority and nonminority students enrolled at predominately white campuses, elaborated:

> "While confirming evidence may be scare, it does not seem unreasonable to suggest that under such conditions the educational experiences and outcomes of college for nonwhite students are probably also very different from those for white students, perhaps significantly so. Certainly, more research is needed to clarify the nature of the college experience and its effects on cognitive and psychosocial change among nonwhite students" (p. 644).

Although minorities cannot be considered a homogeneous group, it has been suggested by several studies that minority students, in general, encounter common experiences in college that are different than their nonminority counterparts (e.g., Pascarella & Terenzini, 1991; Turner, 1994; Bean & Hull, 1984; Fleming, 1984; Eimers & Pike, 1997). There are several findings that support this premise. First, minority students tend to report higher levels of prejudice on campus (Eimers & Pike, 1997; Nora & Cabrera, 1996; Hendricks, Smith, Caplow, & Donaldson, 1996). Consequently, these perceptions may hinder minority students' ability to get more intensely involved in their college experience and at the same time, may limit the overall quality of that involvement. Second, minority students may be less likely to get involved because they have a more difficult time identifying with a critical mass of their peers and/or specific faculty members with whom they feel comfortable. Again, this may not only limit the extent of their involvement

but also the quality of that involvement. Loo and Rolison (1986) and Suen (1983) reported that minority students were significantly more likely to express feelings of isolation and alienation in college than were nonminority students. Although noted primarily in studies on student retention, a third reason one might expect differences between minority and nonminority students is because of cultural or traditional differences. In a study conducted by Terenzini, Rendon, Upcraft, Millar, Allison, Gregg, and Jalomo (1996) the authors noted that minority students were much more concerned about becoming academically integrated (i.e., integrated and comfortable with their academic work) than they were with becoming socially integrated (i.e., interacting with peers, etc.). On the other hand, nonminority students were more likely to concern themselves with meeting peers and establishing friendships than with becoming integrated in their academic studies. Furthermore, several first-generation minority students found that going to college was a break from tradition rather than an extension of one (Terenzini et al., 1996). In some cases, these first generation college students received significant encouragement from their families. In other cases, families wondered why their son or daughter decided to go to college and thought that their child's future was at home with family, continuing the tradition established by past generations.

Studies have also compared student gains in college among minority students in different institutional contexts (e.g., attending a predominately white campus versus a historically black institution, etc.) and examined differences between minority and nonminority student gains in college based on different instructional practices. DeSousa and Kuh (1996) examined the relationship between student effort and educational gains among African-American students at a predominately white institution (PWI) and a historically black college (HBC). African American students who attended the HBCs devoted more energy to academic activities and reported higher levels of intellectual achievement than African-American students at PWIs. Nevertheless, the differences in racial composition between the two colleges apparently did not influence the level of involvement in social and interpersonal activities. In a similar study, researchers examined the relationship between college experiences and cognitive gains among first-time freshmen African-American students (Terenzini, Yaeger, Bohr, Pascarella, & Nora, 1997). Some students attended PWIs and others attended HBCs. The study noted that cognitive gains were almost entirely explained by pre-college characteristics and that very little variance was explained by what the student had experienced during the first year of college. Other studies have looked more directly at the potential differences between minority and nonminority students in terms of college experiences and college gains. Terenzini, Cabrera, Colbeck, Parente and Bjorklund (1999) found that different forms of active teaching practices (e.g., collaborative learning, instructor interaction and feedback, etc.) had a positive effect on different types of college skill development (e.g., group work, problem-solving, etc.) among undergraduate engineering majors. Further, the authors concluded that the effect of these teaching practices influenced minority as well as nonminority skill development in very similar (and positive) ways.

In sum, researchers have examined potential differences between minority and nonminority college students under an array of different purposes, circumstances, and institutional contexts. Although several studies have examined the relationship between a college student's experience and his or her progress in college, relatively few studies have specifically examined potential differences between minority and nonminority students who are attending college under similar circumstances.

Research Questions

Two research questions form the basis of this inquiry:

1. How do minority students perform on progress in college measures when compared to nonminority students particularly when the two groups may engage and experience the campus environment in systematically different ways?

2. Does the satisfaction with these aspects of the college environment affect student growth and development in some outcome areas more dramatically than in other areas? Are there differences between minority and nonminority responses?

This study measured student satisfaction in four areas: faculty-student relations, assessment of the academic atmosphere, campus climate, and overall assessment of their college experience. These measures were then compared to four distinct types of college outcomes: math and science development, intellectual and skill development, career development, and problem-solving development.

Importance of Study

This study broadens the focus within the area of research on undergraduate college student development. That is, by breaking down the undergraduate experience into specific aspects—relationships with faculty, academic quality, campus climate, and overall quality—and comparing these aspects with a student's progress toward specific college outcomes in science and math, problem-solving, intellectual and skill growth, and career development—another layer of understanding is added to this area of inquiry. Second, this study will help to clarify the differences, if any, between minority and nonminority undergraduate students in relation to these aspects of the undergraduate experience and their progress toward college outcomes. That is, differences between minority and nonminority undergraduate students may suggest that certain aspects of colleges are more or less important and specific actions and/or experiences may be more fruitful depending on minority-nonminority status. Third, a large proportion of the studies in this area have limited their inquiry to only first-time freshmen, have only examined one type of progress (e.g., cognitive development, or personal development, etc.), and/or have centered on how a student's perception of progress in college influences his or her decision to continue in college. In this study the single focus centers on the relationship between different types of college experiences and different types of college outcomes, particularly as they apply to minority and nonminority students of sophomore, junior, or senior status.

Data Collection and Methodology

American College Testing (ACT) developed the College Outcomes Survey (CO Survey). It includes four sections. The first section asks students questions regarding their background and current status at the institution, the second section includes items that address the importance of certain college outcomes and the progress made toward those outcomes, and in the third section the student is asked to respond to items that address his or her satisfaction or dissatisfaction with given aspects of college. In the final section students are asked how their college experience has contributed to their growth.

Data were collected from a sample of full-time undergraduate students that attended the University, a four-campus system that enrolls approximately 41,000 undergraduate students. The University is comprised of four campuses: Institution A, a residential campus and Research I institution that enrolls 17,600 undergraduates; Institution B, an urban campus and Doctoral I institution that enrolls 6,100 undergraduates; Institution C, a residential, Doctoral I institution that enrolls 4,000 undergraduates; and Institution D, an urban, Doctoral II institution enrolling just over 13,000 undergraduates. During the 1998 spring term 3,971 full-time, randomly selected undergraduate students at the University received the CO Survey. (There were approximately 1,000 students on each campus that received the survey.) A week later they received a postcard reminder, and during the second week of April those who had not responded received another survey. A final reminder (via email or phone call) was provided to the majority of remaining non-respondents during the last week of April. The overall response rate equaled 32.5% (1,291/3,971). Responses per campus were 299 at Institution A, 317 at the Institution B, 346 at Institution C, and 329 at Institution D campus. Compared to the full-time undergraduate students enrolled at the

University, females and seniors were slightly over-represented in the sample and freshmen were slightly under-represented.

An important aspect of this study required that students report the progress they had achieved on specific educational outcomes since having enrolled at the University. Consequently, those students who had achieved less than 24 credit hours at the University were removed from the sample. Using 24 credit hours at the current institution is consistent with previous studies that have used the CO Survey to measure student progress (Graham, 1998). This procedure reduced the number of usable surveys to 923. Of these respondents, 133 identified themselves as African-American (n=52), Asian or Pacific Islander (n=49), Multiracial (n=11), American Indian or Alaskan Native (n=9), or Hispanic non-white (n=12). Further, there were 763 respondents who identified themselves as white and 27 respondents whose ethnicity was unknown or missing.

Four independent variables were developed for this study: *Faculty-student relations, academic atmosphere, campus climate,* and *overall assessment.* The items used to create these variables were taken from Section III of the CO Survey. This section asks students to report their level of satisfaction with each item. *Faculty-student relations* included three items that address faculty respect for students, availability for appointments, and quality of informal contact. *Academic atmosphere* included six items related to the quality of the academic program, teaching, and academic advising as well as how satisfied they were with course offerings, degree flexibility, and class size. The third independent variable, *campus climate,* consisted of three items that addressed personal safety on campus, freedom from harassment, and their satisfaction with campus atmosphere toward ethnic, political, and religious understanding. Lastly, an *overall assessment* variable was developed. *Overall assessment* included items related to satisfaction with the college in general, concern for the student, and their sense of belonging on campus. Table 1 displays each variable, the items included in the scale to measure the variable, and the Cronbach alpha for each of these scales.

[Insert Table 1 here]

Section II of the CO Survey consists of 26 items that ask students to report their level of progress toward specific college outcomes. These items include, for example, a student's progress toward "speaking more effectively," "broadening my intellectual interests," and "learning about career options." Using these items, three principle components factor analyses were conducted employing the varimax procedure with an orthogonal rotation. The first included all respondents and resulted in four factors that closely resembled factor structures reported in previous studies (Graham, 1998): scientific reasoning, intellectual development, career development, and problem solving. Separate factor analyses were also run for the minority and nonminority samples to examine if there were major differences. The nonminority analysis included four factors and the minority model included six factors. Three factors were exactly the same and closely resembled three of the factors noted in the Graham (1998) study. These factors were labeled math and science development, career development, and development in problem solving. The remaining items were then compared and only those items that were common to both factor analyses were used to create a fourth factor, intellectual and skill development. In sum, the four factors comprised of 24 of the 26 items.[1] Table 2 displays the four factors, the items used in these factors, and factor loadings for each item.

[Insert Table 2 here]

Data Analysis

Data analysis began by separating mean scores for each of the independent variables—faculty-student relations, academic atmosphere, campus climate, and overall assessment—into quartiles. That is, if all of the mean scores on the variable faculty-student relations were sorted from the highest to the lowest, the top 25% of the scores were included in quartile 1, the next

highest 25% of the scores were included in quartile 2, the next highest 25% in quartile 3, and so forth.

To address the research questions, multivariate analysis of variance (MANOVA) was employed: two ethnic groups (minority and nonminority) and four levels of satisfaction (quartiles) for the independent variable under consideration. These two independent variables were used to examine differences on the four dependent variables: math and science development, career development, problem-solving, and intellectual and skill development. For the overall model and the post hoc comparisons, the .01 level of statistical significance was used. In addition, the Scheffe method of post hoc mean comparisons was employed to identify statistically significant group differences in cases where the overall model was statistically significant.

MANOVA was used in this study because the research design included more than one independent variable (i.e., minority-nonminority status and satisfaction with an aspect of the college experience) and four dependent variables (i.e., math and science development, career development, problem-solving, and intellectual and skill development). In this case, MANOVA worked particularly well because this inquiry sought to understand the relationship between each college experience variable and the college outcome variables in consideration of minority-nonminority status. MANOVA allows one to understand this relationship, and in particular, identify potential differences between minority and nonminority students at specific levels.

Limitations

Self-reported data from students—in this case self-reported levels of satisfaction and self-reported gains toward certain outcomes—may be a concern because the data come from a single source. However, the accuracy of these data can be supported from at least two perspectives (American College Testing, 1995). First, the development of the *CO Survey* was based extensively on the literature, items were tested for face and content validity, reviewed by experts in the field of student affairs and student assessment, pilot tested, and statistically analyzed for reliability and validity. Second, ACT notes items were included on the survey only if there was a high likelihood that a student could reasonably and accurately be expected to assess that item. In fact, ACT argues that it would be difficult to find better judges of satisfaction with specific aspects of colleges and/or with their progress towards certain outcomes in college than the students themselves. In specific studies on the accuracy of self-reported student data, studies that have addressed the accuracy of self-reported academic accomplishments in high school (Walsh & Maxey, 1972), self-reported class rank and grades (Armstrong, Jensen, McCaffrey & Reynolds, 1976), and self-related background and school related data (Fetters, Stowe & Owing, 1984) were each recognized as having a fairly high degree of accuracy. In addition, Mittelholtz and Noble (1993) found that student self-reported items taken collectively from ACT survey instruments were found to be accurate and valid measures of student data. One concern regarding the use of self-reported gains in college outcomes is the effect that hallo error may have had in the self-reporting of student gains. Building on the work of Thorndike (1920), Pike (1999) suggested that students' self-reported gains in college may be influenced by a general factor that represents the students' overall assessment of these gains in college. That is, a student has a general perception of how much they progressed in college, and consequently, this general perception affects their reported assessment on individual items. Furthermore, high correlation between a college student's satisfaction with certain college experiences and gains in colleges may also be under girded by a general factor. Nevertheless, although there is evidence that a general factor may influence student perception of gains, researchers are not certain as to the level of effect in different circumstances. In sum, it is important to acknowledge the possible influence of halo error but it does not supercede the potential contribution that studies such as this one may have on enhancing the research in this area of inquiry. As Pace (1987) noted, "good things go together" (p. 1) suggesting that those students who do well in one area also tend to do well in other areas.

Results

Table 3 displays t test comparisons between the minority and nonminority students on the four independent variables and the four college outcome variables. Among the independent variables comparisons, there were no statistically significant differences between minority and nonminority students in terms of faculty-student relations ($p < .47$) and academic atmosphere ($p < .54$). There were, however, statistically significant differences between minority and nonminority responses to the campus climate ($p < .01$) and overall assessment ($p < .01$). In terms of the college outcomes variables, there were no differences in math and science development ($p < .67$), career development ($p < .82$), or problem-solving ($p < .95$). There was, however, a statistically significant difference in intellectual development ($p < .01$), where minority students reported greater gains (x = 3.44) than nonminority students (x = 3.25).

[Insert Table 3 here]

Four multiple analysis of variance were conducted and the results are displayed in Table 4. The MANOVA for faculty-student relations on the four college outcomes measures was statistically significant by the Wilks' Lamba criteria ($F = 4.57$, $df = 4,12$, $p < .01$). Looking at the model on each of the outcome measures, statistically significant findings were noted for math and science development ($F = 3.75$, $p < .01$), intellectual and skill development ($F = 11.96$, $p < .01$), career development ($F = 10.03$, $p < .01$) and problem-solving ($F = 7.82$, $p < .01$). Faculty-student relations was statistically significant for each college outcomes measure, whereas minority-nonminority status was statistically significant ($F = 6.20$, $p < .01$) for only one outcome measure, intellectual and skill development. The post-hoc means comparisons using the Scheffe test—with few exceptions—found statistically significant differences in the mean scores among respondents placed in the four quartiles. Generally, as the level of satisfaction with faculty-student relations increased, so too did the level of progress reported in the four outcomes areas.[2] In terms of minority-nonminority status, minority students reported significantly greater increases in intellectual and skill development than nonminority students did. There were no statistically significant interaction effects. Table 5 depicts mean scores on each college outcome variable based on the quartile increases in faculty-student relations for minority and nonminority respondents.

[Insert Tables 4 and 5 here]

The MANOVA for academic atmosphere on the four college outcomes measures was statistically significant by the Wilks' Lamba criteria ($F = 7.78$, $df = 4,12$, $p < .01$). Looking at the model on each outcome variable, the model on math and science development was statistically significant ($F = 13.01$, $p < .01$), the model for intellectual and skill development was statistically significant ($F = 15.36$, $p < .01$), as well as the models for career development ($F = 21.27$, $p < .001$) and problem-solving ($F = 10.66$, $p < .01$). Academic atmosphere was statistically significant for each college outcomes measure, whereas minority-nonminority status was statistically significant ($F = 7.66$, $p < .01$) for only intellectual and skill development. Minority students reported significantly greater increases in intellectual and skill development than nonminority students did. As with faculty-student relations, there were no statistically significant interaction effects. As Table 5 denotes, in general, as the assessment of the academic atmosphere increases, so to does the perception of progress toward specific college outcomes.

The third MANOVA conducted for this study examined the influence of campus climate on the four college outcome measures. This test was statistically significant by the Wilks' Lamba criteria ($F = 3.29$, $df = 4,12$, $p < .01$). The model noted statistically significant findings for each of the college outcome measures: math and science development ($F = 3.31$, $p < .01$), intellectual

and skill development ($F = 5.27$, $p < .01$), career development ($F = 8.45$, $p < .01$), and problem-solving ($F = 4.38$, $p < .01$). More specifically, campus climate was statistically significant for each college outcomes measure, minority-nonminority status was statistically significant ($F = 5.27$, $p < .01$) for only one outcome variable, intellectual and skill development, and the interaction term (campus climate by minority-nonminority status) was significant for career development. As noted previously, minority students reported significantly greater gains on intellectual and skill development. The statistically significant interaction term also suggests that campus climate may have differing influences on career development for nonminorities in contrast to minorities.

The final MANOVA that was conducted for this study looked at the group differences among the student's overall assessment of his or her college experience on the four college outcome measures. According to the Wilks' Lambda criteria, this test was statistically significant at ($F = 9.13$, $df = 4,12$, $p < .01$). Individual models for development in math and science ($F = 13.43$, $p < .01$), intellectual and skill development ($F = 19.54$, $p < .01$), career development ($F = 24.75$, $p < .01$), and problem-solving ($F = 14.33$, $p < .01$) were also deemed statistically significant. The overall assessment measure was statistically significant in each of the four cases. As Table 5 suggests, students who report that their overall assessment of college is high also report greater levels of progress. In terms of minority-nonminority status, this variable was statistically significant for the outcome measure of intellectual and skill development ($F = 13.34$, $p < .01$). However, the interaction term was not statistically significant in any of the four models.

Discussion and Implications

Among minority and nonminority students, increases in progress in college were noted as the student's satisfaction with faculty-student contact, campus climate, academic quality, and overall assessment improved. In consideration of this general synopsis, three areas of discussion are put forth. First, this study supports the literature by confirming that student satisfaction with faculty-student relations, the quality of the academic program, and the campus environment are closely related to a student's progress in specific areas. More importantly, it adds to the literature by demonstrating that the relationships observed were virtually the same for a sample of minority and nonminority students who were enrolled full-time within the four-campus system. Although some previous studies have controlled for ethnicity when examining the relationship between satisfaction and progress (Astin, 1984, 1993), few have compared the two groups of students within the same general educational context. Although individual experiences would vary, in general minority and nonminority students in this study participated within the same campus contexts, interacted with similar faculty and staff, and followed the same general policy requirements and standards.

A second finding of this study is that the results are encouraging. In nearly every case—with both the minority and nonminority students—student satisfaction with various aspects of their college experience were positively related to the gains they made in college. Although the relationship was more pronounced in some cases than in others, it occurred irrespective of the relationship that was being examined. In addition, a college or university has the ability to greatly influence these independent factors. That is, administrators and faculty can develop programs and initiatives to build stronger links and opportunities with students, create a welcome and positive campus climate, and enhance the instruction, advising, and academic programs that all students experience. Further, many of these initiatives can be established and maintained without significant costs to the institution (Graham, 1998; Kuh, 1993; Terenzini & Pascarella, 1994).

Third, the findings of this study reinforce the importance that colleges and universities pay particular attention to creating positive experiences and environments for minority students on their campus. This becomes especially important as minority students become an ever increasing proportion of the college student pool and yet, continue to be less likely to graduate from college than their nonminority counterparts (Porter, 1990; Wilson, 1994). If being more

satisfied with their relationships with faculty, the academic program, and the campus environment lead to greater gains in college (whether real or perceived), then it may lead to higher levels of retention among minority students as well. The focus on developing an inclusive campus environment and opportunities for minority students to get involved with faculty in formal and less formal learning situations probably has special meaning for campuses that have a predominately white student body, staff, and faculty.

In terms of further research, one of the more promising areas to consider is whether minority and nonminority students garner satisfaction from similar types of experiences or interactions with the campus environment. For example, minority and nonminority students might be satisfied with the campus environment or with the relationships they have with faculty members. However, we do not know whether the same types of experiences within these domains contribute similarly to minority and nonminority student satisfaction. It would be important to explore this issue at different types of institutions, but particularly at predominately white institutions. Although this study was undertaken at a single university system, it is interesting to note that minority students, in contrast to nonminority students, reported higher levels of progress in intellectual development, similar levels of satisfaction with faculty-student relations and academic quality, and lower levels of satisfaction with the campus environment. Further research could focus on whether these results are consistent across different institutions, and if so, what implications they suggest.

Conclusion

This study was particularly interested in whether different types of college experiences had the same effect on different measures of progress for both minority and nonminority students. Although the literature has suggested that minority and nonminority students often have different experiences and perceptions of these experiences in college, the findings of this study suggest that the relationship between college experiences and progress to be quite similar for the two groups. The result of this study reinforces the need to further explore how minority and nonminority students interpret their college experience and whether satisfaction with their college experience emanates from similar types of activities, relationships, and environments. Understanding this next component, especially as increasing numbers of minority students enroll in college, will unquestionably help colleges and universities to create an atmosphere and culture conducive to progress in college, persistence, and graduation.

Notes:

1. Please note that all items included in the four factors met a factor loading criterion of .40. Further, all factors met eigenvalues of 1.0, a common minimum standard for factor analysis (SAS Institute, 1990).
2. The results of the post hoc mean comparisons using the Scheffe test are not displayed in this manuscript. In accordance with the work of Graham (1998), reporting the mean scores on each college outcome variable based on the quartile increases in the college experience variable for both minority and nonminority respondents was clearly more meaningful. Please note that in the majority of cases, the differences in means were different in a statistically significant way.

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Table 1. Cronbach's Coefficient Alphas and Items for Faculty-Student Relations, Academic Atmosphere, Campus Climate, and Overall Assessment

Independent Variable and Items
Faculty-Student Relations (Cronbach's alpha = .68)
Faculty respect for students
Availability of faculty for appointments
Informal contact with faculty in non-academic settings
Academic Atmosphere (Cronbach's alpha = .71)
Quality of instruction
Quality of my program of study
Quality of my academic advising
Class size
Flexible degree requirements
Variety of courses offered
Campus Climate (Cronbach's alpha = .64)
Freedom from harrassment on campus
Personal security/safety on campus
Campus atmosphere of ethnic, political, and religious understanding
Overall Assessment (Cronbach's Alpha = .73)
Concern for me as an individual
My sense of belonging on this campus
This college in general

Table 2. Factor Loadings and Items on the Four College Outcomes Measures

Loadings	Factors and Items
	Math & Science Development
0.80	Learn about the role of science and technology in society
0.72	Understanding and applying math concepts and statistical reasoning
0.69	Applying scientific knowledge and skills
0.63	Effectively using technology (e.g., computers, high-tech equipment)
0.57	Learning principles of conserving and improving the global environment
	Intellectual & Skill Development
0.73	Appreciation the fine arts, music, literature, and the humanities
0.70	Broadening my intellectual interests
0.69	Reading with greater speed and better comprehension
0.67	Discovering productive and rewarding uses of my talents and leisure time
0.66	Developing openness to new ideas and practices
0.62	Developing my creativity, generating original ideas and products
0.62	Improving my writing skills
0.62	Thinking objectively about beliefs, attitudes, and values
0.61	Listening to and understanding what others say
0.58	Learning to formulate and re-shape my lifetime goals
0.57	Speaking more effectively
	Career Development
0.72	Developing effective job-seeking skills (e.g., interviewing, resume construction)
0.71	Acquiring knowledge and skills needed for a career
0.70	Learning about career options
0.69	Becoming competent in my major
	Problem-Solving Development
0.73	Drawing conclusions after weighing evidence, facts, and ideas
0.73	Developing problem-solving skills
0.73	Learning to think and reason
0.58	Locating, screening, and organizing information

Note: The factor Loadings that have been reported are from a factor analysis that included both minority and nonminority respondents.

Table 3. t test Mean Comparions on Independent Variables and on Selected College Outcomes by Ethnicity

	N		Mean Scores		
	Min	Non-Min	Min	Non-Min	Prob> |T|
Independent Variables					
Faculty-Student Relations	129	754	3.53	3.58	0.47
Academic Atmosphere	130	756	3.54	3.57	0.54
Campus Climate	126	714	3.38	3.57	0.01*
Overall Assessment	130	756	3.32	3.50	0.01*
Colleges Outcomes					
Math & Science	126	745	3.27	3.23	0.67
Intellectual & Skill	130	748	3.44	3.25	0.01*
Career	126	745	3.47	3.49	0.82
Problem-solving	130	749	3.72	3.71	0.95

* statistically significant $p < .01$.

Table 4. Results of MANOVA Comparisons for Faculty-Student Relations, Academic Atmosphere, Campus Climate, Overall Assessment and Minority-Nonminority Status on Selected Colleges Outcomes

	Math & Science		Intellectual & Skill		Career		Problem-Solving	
	F-value	P	F-value	P	F-value	P	F-value	P
Model: Faculty-Student Relations ^	*3.75*	*0.01**	*11.96*	*0.01**	*10.03*	*0.01**	*7.82*	*0.01**
M-NM Status	0.21	0.64	6.20	0.01*	0.06	0.80	0.02	0.87
Facutly-Student Relations	8.13	0.01*	25.74	0.01*	22.92	0.01*	18.18	0.01*
M-NM Status*F-S	0.56	0.64	0.10	0.95	0.46	0.70	0.06	0.98
Model: Academic Atmosphere ^^	*13.01*	*0.01**	*15.36*	*0.01**	*21.27*	*0.01**	*10.66*	*0.01**
M-NM Status	1.10	0.29	7.66	0.01*	0.03	0.87	0.02	0.89
Academic Atmosphere	12.93	0.01*	18.70	0.01*	23.62	0.01*	13.32	0.01*
M-NM Status*AA	1.56	0.19	2.81	0.04	1.82	0.14	0.75	0.52
Model: Campus Climate ^^^	*3.31*	*0.01**	*5.27*	*0.01**	*4.49*	*0.01**	*4.38*	*0.01**
M-NM Status	0.21	0.64	5.90	0.01*	0.06	0.80	0.02	0.88
Campus Climate	5.74	0.01*	8.45	0.01*	4.51	0.01*	6.93	0.01*
M-NM Status*CC	1.92	0.12	1.89	0.12	5.95	0.01*	3.28	0.02
Model: Overall Assessment ^^^^	*13.43*	*0.01**	*19.54*	*0.01**	*24.75*	*0.01**	*14.33*	*0.01**
M-NM Status	1.71	0.19	13.34	0.01*	0.83	0.36	0.58	0.45
Overall Assessment	12.58	0.01*	20.79	0.01*	28.00	0.01*	16.25	0.01*
M-NM Status*OA	1.89	0.13	0.91	0.43	0.17	0.92	0.15	0.93

* $p < .01$.

^ The multivariate analysis of variance for faculty-student relations and minority-nonminority status on the college outcomes measures was statistically significant by the Wilks' Lamba criteria ($F = 4.57$, $df = 4/12$, $p < .01$).

^^ The multivariate analysis of variance for academic atmosphere and minority-nonminority status on the college outcomes measures was statistically significant by the Wilks' Lambda criteria ($F = 7.78$, $df = 4/12$, $p < .01$).

^^^ The multivariate analysis of variance for campus climate and minority-nonminority status on the college outcomes measures was statistically significant by the Wilks' Lambda criteria ($F = 3.29$, $df = 4/12$, $p < .01$).

^^^^ The multivariate analysis of variance for overall assessment and minority-nonminority status on the college outcomes measures was statistically significant by the Wilks' Lambda criteria ($F = 9.13$, $df = 4/12$, $p < .01$).

Table 5. Mean Comparisons by Faculty-Student Relations, Academic Atmosphere, Campus Climate, Overall Assessment and Minority-Nonminority Status on Selected College Outcomes

	Math & Science			Intellectual and Skill			Career			Problem-Solving		
	All	Min	N-Min	All	Min	N-Min	All	Min	N-Min	All	Min	N-Min
Faculty-Student Relations												
Quartile 4	3.04	2.98	3.05	2.99	3.21	2.95	3.13	3.12	3.14	3.47	3.53	3.46
Quartile 3	3.21	3.32	3.19	3.20	3.43	3.16	3.46	3.43	3.47	3.67	3.64	3.67
Quartile 2	3.27	3.45	3.24	3.28	3.44	3.25	3.58	3.47	3.60	3.70	3.76	3.69
Quartile 1	3.37	3.39	3.37	3.50	3.64	3.48	3.69	3.79	3.67	3.90	3.90	3.91
Academic Atmosphere												
Quartile 4	2.83	3.01	2.79	2.93	3.22	2.88	3.01	3.18	2.98	3.41	3.52	3.39
Quartile 3	3.22	3.12	3.24	3.20	3.10	3.22	3.39	3.17	3.43	3.65	3.51	3.67
Quartile 2	3.37	3.61	3.34	3.37	3.60	3.34	3.62	3.68	3.61	3.80	3.85	3.80
Quartile 1	3.47	3.43	3.48	3.54	3.84	3.49	3.84	3.87	3.83	3.94	4.01	3.92
Campus Climate												
Quartile 4	3.09	3.06	3.10	3.12	3.24	3.09	3.35	3.29	3.37	3.60	3.58	3.60
Quartile 3	3.27	3.18	3.28	3.32	3.37	3.31	3.56	3.23	3.62	3.72	3.51	3.76
Quartile 2	3.34	3.66	3.29	3.39	3.65	3.35	3.53	3.83	3.49	3.77	4.02	3.73
Quartile 1	3.38	3.46	3.37	3.41	4.04	3.33	3.63	4.23	3.56	3.94	4.28	3.91
Overall Assessment												
Quartile 4	2.82	3.10	2.76	2.86	3.21	2.78	2.92	3.03	2.89	3.35	3.48	3.32
Quartile 3	3.15	3.10	3.16	3.18	3.28	3.16	3.38	3.39	3.38	3.63	3.64	3.62
Quartile 2	3.43	3.61	3.40	3.42	3.64	3.38	3.68	3.75	3.68	3.83	3.86	3.82
Quartile 1	3.48	3.40	3.49	3.64	3.89	3.61	3.91	3.95	3.91	4.05	4.10	4.04